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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,393	06/07/2001	Keith Nugent	13113-002001	7770

7590 05/20/2004

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225 Franklin Street  
Boston, MA 02110-2804

EXAMINER

NGUYEN, SANG H

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/830,393

Applicant(s)

NUGENT ET AL.

Examiner

sang nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-109 is/are pending in the application.
- 4a) Of the above claim(s) 25,26,108 and 109 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 and 27-107 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 06/18/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Election/Restrictions***

Applicant's election without traverse of Group I (claims 1-24 and 27-107) filed on 04/15/04 is acknowledged.

**Applicant is required to cancel the none-elected claims 25-26 and 108-109.**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

This office acknowledges of the following items from the Applicant: Information Disclosure Statement (IDS) file on 06/18/01 is received and made of filed record. The references cited on the PTOL 1449 form have been considered.

### ***Specification***

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). **An abstract on a separate sheet is required.**

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The

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abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

**With respect to present abstract, Applicant should provide an abstract on a separate sheet and the abstract should not exceed 250 words/25 lines.**

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a

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nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

**With respect to present invention, Applicant should provide all the "headings" as listed above into the specification.**

***Allowable Subject Matter***

Claims 1-24 and 27-107 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

As independent claims 1 and 27, the prior art of record, taken alone or in combination, fails discloses or render obvious method and apparatus for quantitative determination of the phase of a radiation wave field comprising all the specific elements with the specific combination including of steps transforming the measure of rate of change of intensity to produce a first integral transform representation and applying to the first integral transform representation a first filter corresponding to the inversion of a first differential operator reflected in the measure of rate of change of intensity to produce a first modified integral transform representation, applying an inverse of the first integral transform to the first modified integral transform representation to produce an untransformed representation, applying a correction based on the measured of intensity over the selected surface to the untransformed representation, and transforming the corrected untransformed representation to produce a second integral transform representation and applying to the second integral transform representation a second filter corresponding to the inversion of a second differential operator reflected in the

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corrected untransformed representation to produce a second modified integral transform representation in combination with the rest of the limitation of claims 1 and 27.

As independent claims 51 and 65, the prior art of record, taken alone or in combination, fails discloses or render obvious method and apparatus for imaging an object comprising all the specific elements with the specific combination including of steps transforming the measure of rate of change of intensity to produce a first integral transform representation and applying to the first integral transform representation a first filter corresponding to the inversion of a first differential operator reflected in the measure of rate of change of intensity to produce a first modified integral transform representation, applying an inverse of the first integral transform to the first modified integral transform representation to produce an untransformed representation, applying a correction based on the measured of intensity over the selected surface to the untransformed representation, and transforming the corrected untransformed representation to produce a second integral transform representation and applying to the second integral transform representation a second filter corresponding to the inversion of a second differential operator reflected in the corrected untransformed representation to produce a second modified integral transform representation in combination with the rest of the limitation of claims 51 and 65.

As independent claims 80 and 94, the prior art of record, taken alone or in combination, fails discloses or render obvious method and apparatus for phase amplitude imaging of an object comprising all the specific elements with the specific combination including of steps transforming the measure of rate of change of intensity

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to produce a first integral transform representation and applying to the first integral transform representation a first filter corresponding to the inversion of a first differential operator reflected in the measure of rate of change of intensity to produce a first modified integral transform representation, applying an inverse of the first integral transform to the first modified integral transform representation to produce an untransformed representation, applying a correction based on the measured of intensity over the selected surface to the untransformed representation, and transforming the corrected untransformed representation to produce a second integral transform representation and applying to the second integral transform representation a second filter corresponding to the inversion of a second differential operator reflected in the corrected untransformed representation to produce a second modified integral transform representation in combination with the rest of the limitation of claims 80 and 94.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kane (6,219,142) discloses method and apparatus for determining wave characteristics from wave phenomena; Livingston (5,841,125) discloses high energy laser focal sensor; Siebert (5,367,375) discloses spatial wavefront evaluation by intensity relationship; Ellerbroek (4,690,555) discloses solid state wavefront slope determination; or Gonsalves et al (4,309,602) discloses wavefront sensing by phase retrieval.

This application is in condition for allowance except for the following formal matters:

**Applicant should provide an abstract on a separate sheet and the abstract should not exceed 250 words/25 lines;**

**Applicant should provide all the "headings" as listed above into the arrangement specification;**

**Applicant should canceled non-elected claims 25-26 and 108-109.**

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



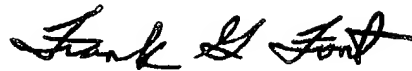
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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SN

Sang Nguyen/SN

April 27, 2004



**Frank G. Font**  
**Supervisory Patent Examiner**  
**Art Unit 2877**  
**Technology Center 2800**